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Report of the Timber Survey of the Boise Basin Experimental Forest

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Estimator.

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Report of the Timber Survey of the Boise Basin Experimental Forest

The Boise Basin Experimental Forest, as referred to in this report, consists of that portion of the Bannock Creek drainage which lies in the legal subdivision T. 5 N., R. 6 E. Boise Meridian. This drainage includes parts of sections 4, 5, 6, 7, 8, 9, 10, 15, 16 and 17, the major portion being in sections 5, 8, 9 and 16.

Incident to cruising this forest, Clive Lindsey, ECW Junior Forester, and a crew of CCC workers started a transit survey of boundary and control lines. A description of these surveys follows:

1. Traverse A; a traverse of Bannock Creek from the forest boundary south to the south line of Sec. 9.
2. Traverse C; a control line from the west to the east boundary of the area, on the south lines of sections 8 and 9, and 10 for a few chains.
3. A boundary survey of the entire area. On the north, Traverse N follows the north line of T. 5 N.; on the east, Traverse E follows the Granite Creek divide; on the south, Traverse S follows the Thorn Creek divide and on the west, Traverse W follows the Pine Creek divide.

Stations on the above surveys were marked at the time of the survey by wooden hubs and temporary wooden stakes. Later certain stations were permanently marked with angle-iron stakes. The stations to be permanently marked were selected from the points of extreme elevation and the points

at definite changes in the course of the traverse with a general maximum of 500 feet between stakes.

The timber cruise of the area was started before these surveys were completed but the surveys were ahead of the cruiseat all times.

In preparation for the cruise, C. A. Connaughton and myself laid out 15 management compartments. These compartments were designated by letters A to O, inclusive, the boundaries following the principal drainage ridges. A is the northernmost compartment on the east side of Bannock Creek and the others follow in order, up the creek on the east side; around the south end, where compartment G includes both sides of the creek at the headwaters; and down the west side of the creek to M, which is the northernmost compartment on the west side. N and O take in the entire drainage of the West Fork of Bannock Creek; N the lower or north half and O the upper or south half.

The compartment lines were marked in the first place by blazes, and crayoned A/B, B/C, etc. Later on metal signs, painted white with black lettering, were placed on the lines, one at each end and one or more at irregular intervals along the line.

Transit traverses were run on lines A/B, B/C, and a portion of M/N; the others were sketched on the map during the cruise.

The purpose of the timber survey or cruise was to gather the following data:

1. A drainage and topographic map, scale 8"= 1 mile and contour interval 50 feet.

2. A forest type map on which the following types were recognized:

a. Ponderosa Pine

1. Overmature, PP - OM
2. Merchantable mature, PP - MM
3. Immature, PP - IM
4. Sapling, PP - Sap
5. Protection sapling, PP - Pr-Sap
6. Unmerchantable, PP - OM-Un

b. Douglas Fir

1. Overmature, DF - OM
2. Merchantable mature, DF - MM
3. Immature, DF - IM
4. Sapling, DF - Sap
5. Protection sapling, DF - Pr-Sap
6. Unmerchantable, DF - OM-Un

c. Aspen, Asp.

d. Brush, Br.

3. To estimate the total volume of timber, on the basis of a 20 percent cruise, using 1/4-acre circular plots as the sampling method.

The cruising crew consisted of six CCC workers; one compassman, two chainmen, two axemen, and one estimator; and myself as chief of party, acting as notekeeper and map maker. The CCC men were members of Idaho City Camp, F-72.

The field procedure was as follows:

1. In sections 4, 5, 6, 7, 8, 9 and 10, strips were run east and west from Bannock Creek to the boundary of the area. Sections 15, 16 and 17 were cruised south from Traverse C, previously described.

The strip starting points on Bannock Creek were determined by computed latitude and departures from the nearest station on Traverse A. Traverse C had stations set at 5-chain intervals and these stations were marked with permanent angle irons. All starting elevations were carried from the known elevations of the traverse stations. Distances and elevations on the strips, were carried by standard 2-chain trailer tape and abney levels.

2. Stakes were cut, marked and set at the center of each sample plot. They were marked with the strip number and plot number, i.e. 6-10E being plot #6 on strip #10 to the east. The first plot on each strip was numbered 1. The nearest, normal tree to the center of the plot was blazed and marked the same as the plot center stake. This tree is the height tree referred to in the following paragraph.

3. On the plot all merchantable trees, 9.6" D.B.H. and over were tallied by species, D.B.H. and for ponderosa pine, Dunning's tree classes. The height tree was measured and the D.B.H. and tree class of it recorded. If this tree was other than ponderosa pine the crown class rather than the tree class was recorded. "Reproduction" or poles were tallied by species and 2-inch D.B.H. classes. These 2-inch classes were: 3.1" to 5.0", 4" class; 5.1" to 7.0", 6" class, and 7.1" to 9.5", 8" class.

4. Separate tally sheets were used for each 10-acre block and for each type and compartment within this block.

5. When cruising in protection, brush or aspen types, no plots were taken. Strips were run thru these types to get the data for the map with this exception; from strip 11E to 33E, inclusive, only the odd numbered strips, 13E, 15E, etc., were completed. The others, even numbered, were not continued beyond the timber.

6. At the end of each strip a stake was set with the strip number and the elevation marked on it. This point was tied into the nearest traverse station by magnetic bearing, distance and difference in elevation.

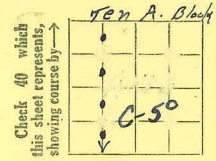
Sections 15 and 16 were not cruised until the spring of 1934. The procedure used was identical with that used in 1933. The crew was cut to four men and the work done by temporary Forest Service men rather than CCC workers. There was one digression from the described procedure. Strips 29-S, 31-S, 33-S and 35-S were not run because they cover largely unmerchantable stands. This gave a 10 rather than a 20 percent cruise in the blocks covered by these strips.

C. A. Fawcett

C. A. FAWCETT
Estimator.

Sample Tally Sheet - Bannock Cr. ~~Cruise~~ 1933.

Form 494 (Revised 1916)



Check 40 which this sheet represents, showing course by →

T 5N Sheet No. 1
R 6E Strip # ~~Ht. Class~~ 6-E ____ Compassman
S 5 Compartment 10 Acre Block C-50 ____ Estimator
40 pp Type 10m ____ Logging Unit 6/1/33 Date 4444 each plots Site

Dunnings Tree Classes for P.P.

D. B. H.	1	2	3	4	5	6	7	Other Species D.F.	A.F.	L.P.
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
~~Vol. on strip~~			Reproduction							
Plot #			P.P.				D.F.			
Full %	1	2	3	4	1	2	3	4		
Inch Class 4 Vol. on strip net										
6 Vol. on 40	P. Pine		P. Fir.							
8 No. logs on 40	T.C. D.B.H.		C.C. D.B.H.							
~~Ht. Trees~~ No. trees on 40	5 - 30"		0 - 30"							
	130'		130'							
	Ht.		Ht.							

Snags over ____ inches D. B. H. and ____ feet high ____

Average stand per acre= ____

8—2406

11/30/34

REPORT OF THE TIMBER SURVEY OF THE PINE CREEK DIVISION OF THE BOISE BASIN EXPERIMENTAL FOREST

The Pine Creek division of the experimental forest includes parts of Sections 6, 7, 8, 17, 18, 19, and 20 in T. 5 N., R. 6 E. Boise Meridian.

The entire area was cut-over by the Boise-Payette Lumber Company in the spring and summer of 1933. This necessitated the use of a method of cruising adaptable to cut-over areas. It was decided to use a similar procedure to that followed by E. L. Mowat in the 1932 Mc cut-over cruises. This also made the data gathered comparable to that taken on the series of permanent sample plots, established on this area in 1933.

Incident to the cruise, two surveys were completed to locate the boundary of the area and establish a series of control points for the cruise strips. These were designated as Traverse D and Traverse F. Both surveys were made with a transit and 100-foot surveyor's tape. Considerable care was used to get accurate results; the vertical angles being taken both ways, at each transit set up; all horizontal angles were turned off at least twice, and stadia distances were taken to check the chaining. The base elevation was carried from the 1933 Bannock Creek survey * and checked exactly with a bench mark on the old railroad survey in upper Pine Creek.

The survey party consisted of four temporary men; two chainmen, one rodman and myself as instrument man and notekeeper.

*Note: Although traverse N of the 1933 surveys officially ends on the Bannock Creek ridge, it was extended west to the northwest corner of T. 5 N., R. 6 E. so that traverse D actually ties to traverse N at that point.

Traverse D starts at the northwest corner of T. 5 N., R. 6 E. and follows the township line south, to the northwest corner of Section 19 in T. 5 N., R. 6 E.

On Traverse D all transit points were marked with hubs and temporary stakes. In addition some intermediate hubs were set, either at points of extremes in elevation or to break long shots. At 5-chain (330 ft.) intervals, temporary stakes were set and the elevations of these points taken, these points to be used as cruise strip starting points. Later on permanent "angle iron" stakes were set at these points and stamped with consecutive numbers, D-1 to D-48, inclusive. This traverse crosses the Pine Creek-Thorn Creek divide at a point 9.54 chains (629.64 ft.) north of the end of the traverse or at station D-159+99.6.

Traverse F starts at this station and follows the divide east and north to W-41 on the 1933 survey. Transit points and intermediate stations were set and marked on this traverse as on traverse D. At this time, no permanent stakes have been set.

The following data were collected on the timber cruise:

1. A drainage and topographic map; scale 8"= 1 mile, contour interval 50 feet.
2. A forest type map, on which the following types were recognized.

Ponderosa pine.

Overmature, PP-OM
Merchantable mature, PP-MM
Immature, PP-IM
Sapling, PP-Sap
Protection sapling, PP-Pr.Sap

Douglas fir.

Overmature, DF-OM
Merchantable mature, DF-MM
Immature, DF-IM
Sapling, DF-Sap
Protection sapling, DF-Pr.Sap

Brush, Br.

Aspen, Asp.

3. An estimate of the total volume of timber on the basis of a 10 percent cruise, using 1/4-acre circular plots as the sampling method.

4. Miscellaneous data, including stocking by the quadrat system, samples of vegetative cover, slash disposal methods and reproduction tallies.

5. The measured height of one tree on each plot, usually the closest normal tree to the center of the plot.

The cruising crew consisted of four temporary men; one compassman and head chainman, one map maker and rear chainman, one estimator and myself as notekeeper.

Strips were run from the iron stakes on traverse D, previously described, east to the Bannock Creek divide. Plots were taken at 5-chain intervals. Wooden stakes, creosote treated and painted white, with plot numbers in black, were set at the center of each plot. The plot numbers start with #1 the first plot on strip #1 and run consecutively to plot #786, the last plot on strip #53. Two numbers, 384 and 765 were not used. Also in the field the strip number was written on each stake with crayon.

The data from each plot were recorded in code. A description of the data and an explanation of the code follows:

1. A description of the plot.

Plot number.

Forest type, by number.

1. Ponderosa pine.
2. Douglas fir.
5. Brush, aspen, protection.

Age class, by number.

1. 0-40
2. 40-80
3. 80-120
4. 120-160
5. Over 160.

Site, site class numbers direct.

Aspect, by number.

1. North
2. South
3. West
4. East
5. Ridge top
6. Creek bottom.

Slope, percent topographic, by number.

1. 0 - 5
2. 6 - 20
3. 21 - 40
4. 41 - 70
5. Over 70.

Slash disposal, by number.

1. No disposal.
2. Piled and burned.
3. Piled and not burned.
4. Broadcast burned.
5. No slash.

2. All merchantable trees 9.6" D.B.H. and over were described by:

Species, by number.

1. Ponderosa pine.
2. Douglas fir.
3. Lodgepole pine.
4. Alpine fir.

D.B.H., one inch classes.

Height, estimated in ten-foot classes with the exception of the measured tree previously described. This measured height was indicated on the tally sheet by enclosing it in parentheses.

Release by logging, by number.

0. No release.

1. 1/4 release.

2. 1/2 release.

3. 3/4 release.

4. Full release.

Tree class, Dunning's numbers direct.

Crown class, by number.

1. Dominant.
2. Co-dominant.
3. Intermediate.
4. Suppressed.
5. Isolated.

Economic tree class, Anderson's * numbers direct.

1. Young bull pine.
2. Older bull pine.
3. Shop type tree.
4. Select type tree.
5. Inferior tree.

*Note: For a full description of economic tree classes see: Anderson, I. V. Why Selective Logging of Ponderosa Pine Pays. The Timberman, vol. 35, no. 11, pp. illus. Sept. 1934.

3. Poles were tallied by species and ~~one-chain~~ inch classes, 3.6" D.B.H. to 9.5" D.B.H., inclusive.

4. Reproduction was counted on a strip one chain long and ten links (6.6 ft.) wide. In all cases this strip extended one chain from the plot center west. The Classification was by species and classes:

   0' to 2'.
   2' to 4½'.
   4½' to 1/2" D.B.H.
   1", 2" and 3" D.B.H.

5. Vegetation cover was tallied on the same strip as the reproduction. A density percentage was given for the strip (all species) and each species* given a composition percentage. Usually this last was limited to the four or five most numerous species. Tree reproduction was given a density percentage independent of the vegetation where an appreciable density existed.

To get an indication of the stocking on the area both before and after logging, a line of quadrats was taken on each cruise strip. These quadrats were taken at the end of each measured chain and were 21.8 by 25 links in size. The stocking was tallied on a special sheet, not the cruise tally sheet, and by the following code:

*Species symbols from RS-Pf-Damage and Mc, vegetation list of 11/15/32.

0. No stocking.
1. Live tree over 9.5" D.B.H.
2. " " 3.6" to 9.5" D.B.H.
3. " " less than 3.6" D.B.H.
4. Stump over 9.5" D.B.H.
5. " 3.6" to 9.5" D.B.H.
6. " less than 3.6" D.B.H.
7. Dead tree over 9.5" D.B.H.
8. " " 3.6" to 9.5" D.B.H.
9. " " less than 3.6" D.B.H.

At the end of each strip a temporary stake was set and crayoned with the strip number. This point was tied to the nearest traverse station by magnetic bearing, distance in chains and difference in elevation.

Strips #49 to #53 inclusive, were not started from traverse D, but were started from traverse F at points determined by computed latitudes and departures. In some places these strips ran outside the area, breaking the strips into segments. Each end of each segment was marked with a temporary stake.

Supplementary to the experiment forest cruise, two sections of cut-over land in Pine Creek proper were cruised. These were Sections 1 and 12 in T. 5 N., R. 5 E. Boise Meridian. Strips were started from the control stakes on traverse D and run west for one mile but as this was a 5 percent cruise, only the odd numbered, 1, 3, 5, etc. strips were run.

The procedure and the data gathered were identical with that described for the Pine Creek experiment forest cruise, with the following exceptions:

1. No topographic map was made; only a drainage, culture and type map.
2. The cruise was 5 percent rather than 10 percent.
3. No prepared plot center stakes were used but temporary stakes were set.

4. The crew was reduced to three men.

Letter size, tabulation paper was used to record all data. Attached is a sample heading as used on both cruises.

C. A. Fawcett.

C. A. FAWCETT
Estimator.

Sample heading for all Pine creek timber cruises, 1934.

Plot #	Type	Age class	Site	Aspect	Slope	Slash disp.	Species	D.B.H.	Ht.	Volume	Release	Tree class	Crown class	Ec. Tree class.	Hind / Defects / Defrees	Species	Poles DBH 4 5 6 7 8 9	Species	Reproduction 0-2'	2'-4½'	4½'-6'	1" 2" 3"	Veg. Density %	Species	%